

*Safe Rooms*  
*A Mitigation Success Story*

*Presented to:*

TEXAS RISK MITIGATION LEADERSHIP FORUM

Austin, Texas

June 29, 2010

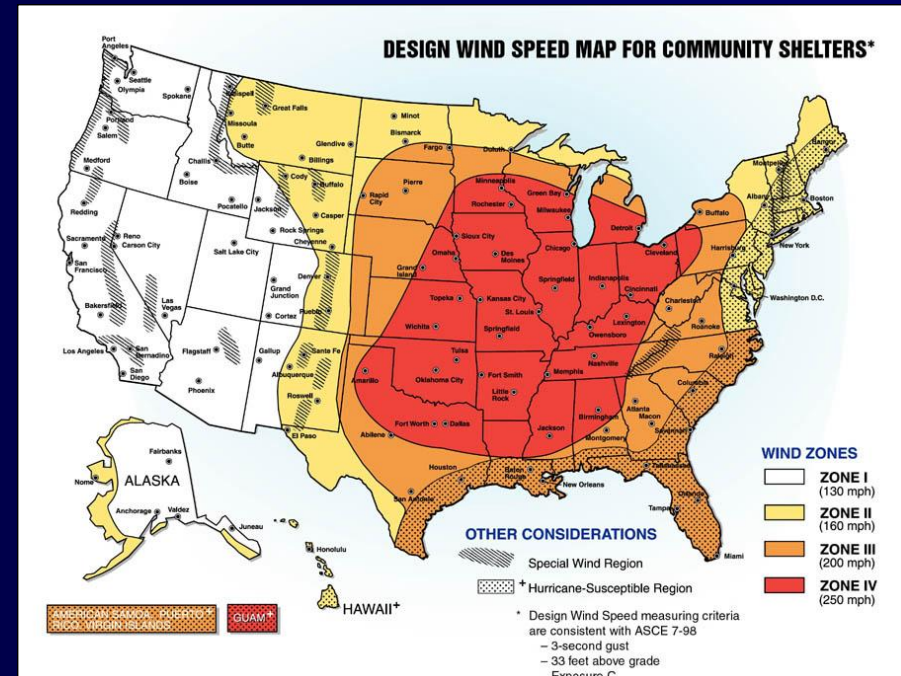
*Presented by:*

Ernst W. Kiesling, P.E., Ph.D.

Executive Director, NSSA

# *Fear of Extreme Winds*

Most people in U.S.  
are **subject to**  
**extreme winds**



# *Experiencing Extreme Winds*

- *Severe Weather Watches and Warnings*

Lead to *Anxiety*

- Each year, about five billion person-hours are spent under severe weather watches

*Oklahoma City*



*Spencer, SD*





*Safe rooms are critical to occupants of mobile homes*

# Mitigation Success Story

Storm Shelters  
(Safe Rooms)  
relieve anxiety  
*and*  
reduce risks



Beth Bartlett, her mother Norma Bartlett, two dogs and two cats weathered out the tornado in their safe room.

# Wind Engineering

## Program Development

- Safe Room development
  - Concept 1973; TR 83 Interim Guidelines; Jarrell, DateLine 1997; HMGP
- Standards Development
  - ANSI/ASCE 7; FEMA 320, 361; ICC 500



# Wind Engineering

## Program Development

- Design of window glass
  - Hurricane Alecia, Design standards
- EF Scale
  - Fujita Scale 1970; EF Scale 2007

# Mitigation Success Stories Related to Safe Rooms

- FEMA Support

- Publications

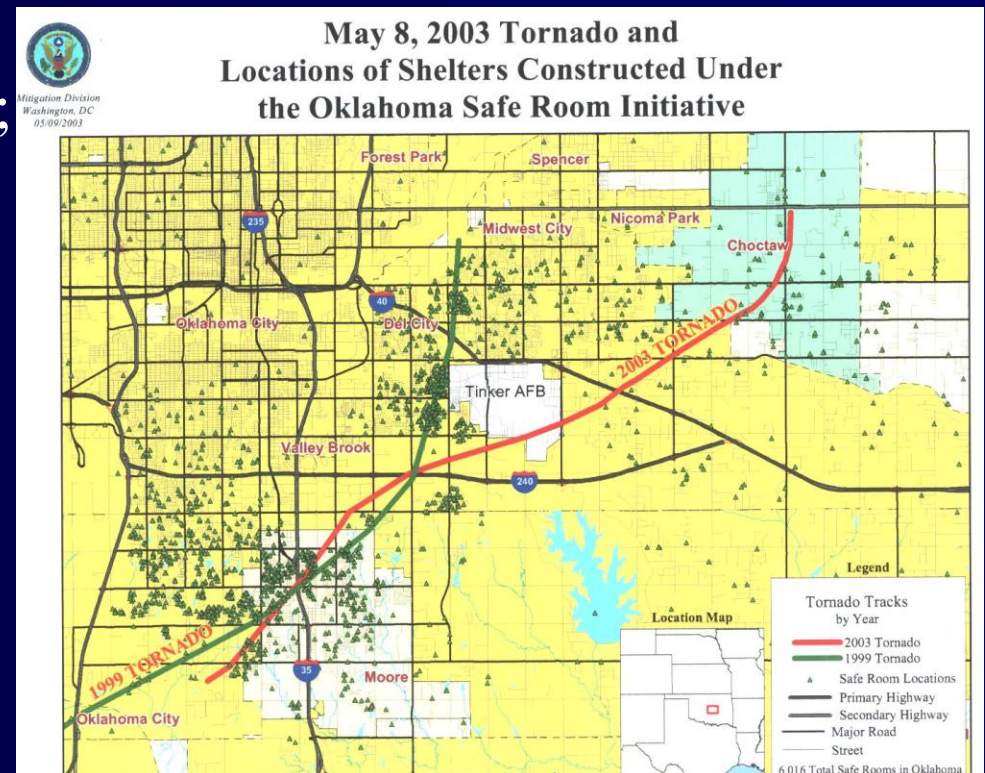
- FEMA 320, 361, HAZUS;

- MAT reports

- HMGP Grants

- Residential 1999

- Community



# *Mitigation Success Stories*

- **FLASH**
  - Networking, Coordination, Outreach, Education
- **State of Texas**
  - Quality control—require NSSA Seal on residential shelters
- **FEMA Region VII**
  - Support of Shelter construction; quality control
- **State of Alabama**
  - Now requiring safe areas in all new schools
- **ICC**
  - Quality control through standards

# *Quality Issues*

HMGP stimulated rapid growth in shelter industry

OKC 1999

Few professionals involved in design

Manufacturers created new products

No standard for storm shelters

Emphasized need for

professional/trade association

# National Storm Shelter Association



## *Guide to* *Quality* *Assurance*



## *Description of NSSA*

- NSSA in a not-for-profit trade association
- Chartered in Texas as an IRS 501(c) 6
- Self-policing for the benefit of the public and a strong, credible industry

# *Shelter Quality Verification Process*

1. MEMBER pledge to produce only those shelters that meet or exceed the Standard
2. Abide by NSSA Bylaws and Code of Ethics
3. Obtain third-party approval of design or variations from FEMA 320
4. Test shelter or FEMA 320 variations for debris impact resistance. Use tested door ([www.wind.ttu.edu](http://www.wind.ttu.edu)) .
5. Affix Seal and file Certificate of Installation with NSSA for each shelter installed

## *Strengths of NSSA Process*

- Shifts major responsibility for compliance to shelter provider
- Offers support to building officials/inspectors to insure quality
- Identifies providers with products for long term
- Makes expertise of highly qualified professionals available to stakeholders



# *Benefits of NSSA Membership*

## *Consumer*

- Guidance to quality-verified products and producers
  - Checklists of important elements of shelter quality
    - Guidance on shelter selection, location
      - Industry standard that establishes quality criteria
        - Increased value with NSSA seal

# *Benefits of NSSA Membership*

## *Building Official*

- Higher comfort level in approving shelters and components
  - Storm shelter quality standard
    - Quality essentials checklist
      - Advice/consulting with experienced professionals

## *Opportunities for NSSA*

- Encourage replication of Texas HMGP shelter program in other states
- Encourage **widespread utilization** of the NSSA storm shelter quality verification process
- Promote NSSA process for quality verification in other segments of the building industry

## *Challenges for NSSA*

- Develop sustained source of funding to develop opportunities & maintain programs
- Find ways to respond to public service opportunities resulting from extensive visibility and credibility
- Find avenues for greater influence on shelter quality, public policy

# Information Sources - *TTU*

- Texas Tech University

Wind Engineering Research Center

[www.wind.ttu.edu](http://www.wind.ttu.edu)

(TTU) WIND CTR

(888) 946 - 3287

# *Information Sources*

**National Storm Shelter Association**

**[www.NSSA.cc](http://www.NSSA.cc)**

1 (877) 700 - 6772 (NSSA)

For Testing

(806) 742 - 6772 (NSSA)

**Thank you for inviting me**  
**here and for your support**  
**of quality in the storm**  
**shelter industry.**